



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/619,699	07/15/2003	Philip L. Hower	TI-35521	7146
23494	7590	07/14/2004	EXAMINER	
TEXAS INSTRUMENTS INCORPORATED			PHAM, LONG	
P O BOX 655474, M/S 3999			ART UNIT	
DALLAS, TX 75265			PAPER NUMBER	
			2814	

DATE MAILED: 07/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/619,699

Applicant(s)

HOWER ET AL.

Examiner

Long Pham

Art Unit

2814

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 7,8,13,14 and 21 is/are allowed.
- 6) ☒ Claim(s) 1-6,9-12 and 15-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>07/15/03</u> . | 6) <input type="checkbox"/> Other: ____.  |

**DETAILED ACTION**

***Claim Objections***

1. Claim 1 is objected to because of the following informalities: in line 4, "the second transistor segments" does not have antecedent basis. Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1, 2, 3, 4, 5, 6, 9, 10, 11, and 12 are rejected under 35 U.S.C. 102(e) as being anticipated by Chang et al. (US 2004/0056317).

With respect to claim 1, Chang et al. teaches a transistor device, comprising (see [0006] and figure 4):

a first transistor segment or a gate of a word line extending along a first axis; and

a second transistor segment or a source or drain of a bit line extending along a second axis;

wherein the first and second transistor segments are contiguous with one another and wherein the first axis and the second transistor segment are non-coaxial.

With respect to claim 2, Chang et al. further teaches the first and second axes are perpendicular. See fig. 4.

With respect to claims 3 and 9, Chang et al. further teaches the transistor device is a MOSFET. See [0006].

With respect to claims 4 and 10, Chang et al. further teaches at least one of the first and second axes is straight. See fig. 4.

With respect to claims 5 and 11, Chang et al. further teaches the first transistor segment extends along the first axis between a first end and a second end, an wherein the first end of the first transistor segment is proximate the second transistor segment. See fig. 4.

With respect to claims 6 and 12, Chang et al. further teaches the first end of the first transistor segment is proximate to an end of the second transistor segment. See fig. 4.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chang et al. (US 2004/0056317).

With respect to claims 15 and 16, Change et al. fail to teach the ranges for the effective aspect ratio.

However, it would have been obvious to one of ordinary skill in the art of making semiconductor devices to determine the workable or optimal value or range for the effective aspect ratio through routine experimentation and optimization to obtain optimal or desired device performance because the effective aspect ratio is a result-effective variable and there is no evidence indicating that it is critical or produces any unexpected results and it has been held that it is not inventive to discover the optimum or workable ranges of a result-effective variable within given prior art conditions by routine experimentation. See MPEP 2144.05.

5. Claims 17, 19, and 20 are rejected under 35 U.S.C. 102(e) as being anticipated by Chang et al. (US 2004/0056317).

With respect to claim 17, Chang et al. teaches a transistor device, comprising (see [0006] and figure 4):

a plurality of contiguous transistor segments or gates of a word line and source or drain of a bit line, individual transistor segments extending along a corresponding segment axes, wherein at least two of the segment axes are at non-zero angle with respect to one another.

With respect to claim 20, Chang et al. further teaches the transistor device is a MOSFET. See [0006].

With respect to claim 19, Chang et al. further teaches at least one of the segment axes is straight. See fig. 4.

6. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chang et al. (US 2004/0056317).

With respect to claim 18, Change et al. fail to teach the range for the effective aspect ratio.

However, it would have been obvious to one of ordinary skill in the art of making semiconductor devices to determine the workable or optimal value or range for the effective aspect ratio through routine experimentation and optimization to obtain optimal or desired device performance because the effective aspect ratio is a result-effective variable and there is no evidence indicating that it is critical or produces any unexpected results and it has been held that it is not inventive to discover the optimum or workable ranges of a result-effective variable within given prior art conditions by routine experimentation. See MPEP 2144.05.

***Allowable Subject Matter***

7. Claims 7, 8, 13, 14, and 21 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Long Pham whose telephone number is 571-272-1714. The examiner can normally be reached on M-F, 7:30AM-3:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael Fahmy can be reached on 571-272-1705. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Application/Control Number: 10/619,699

Art Unit: 2814

Page 6



Long Pham

Primary Examiner

Art Unit 2814

LP